Table 5
Summary of Results for North Area Soil

North Area Soil

Location	RI/FS Concentration Gradient (mg/kg DW)		2010 BERA Concentration Gradient (mg/kg DW)		Soil Benchmark (mg/kg DW)	Marine Sediment Benchmark (mg/kg DW)	Mean Bioassay Results**
BERA Sample ID: NAS01 North Soil Area RI/FS Sample ID:SB202	Location represents high concentrations of barium, chromium, copper, and zinc. 4,4'-DDT and Aroclor-1254 are below detection limits and not expected to be present.		Location represents high concentrations of chromium, copper, and zinc; and mid concentration of barium.				***Polychaete - 21 day, Neanthes arenaceodentata*** **Survival**: No statistically significant difference from reference locations. **Growth**: No statistically significant difference from reference locations.
4,4'-DDT	0.00282 U	NA	NA	NA	NA	0.00119	
Aroclor-1254	0.013 U	NA	NA	NA	500	0.0227	
Barium	**476**	High	272	Mid	330	NA	
Chromium	**128**	High	**97.3**	High	0.4	81	
Copper	**200**	High	**221**	High	61	34	
Zinc	**5,640**	High	**5,770**	High	120	150	
BERA Sample ID: NAS02 North Soil Area RI/FS Sample ID:SB204	Location represents high concentrations of 4,4'-DDT and Aroclor-1254; mid concentrations of chromium, copper, and zinc; and low concentration of barium. Sample from 0-2 ft bgs.		Location represents mid concentrations of barium, chromium, copper, and zinc; and low concentrations of 4,4'-DDT and Aroclor-1254.				***Polychaete - 21 day, Neanthes arenaceodentata*** **Survival**: No statistically significant difference from reference locations. **Growth**: No statistically significant difference from reference locations.
4,4'-DDT	0.395	High	**0.0075 J / 0.015 J**	Low	NA	0.00119	
Aroclor-1254	6.35	High	**0.093 J / 0.16 J**	Low	500	0.0227	
Barium	67.7	Low	163 / 261	Mid	330	NA	
Chromium	22.8	Mid	**27.2 / 23.1**	Mid	0.4	81	
Copper	**92.3**	Mid	26 / 24.9	Mid	61	34	
Zinc	**134**	Mid	**296 JH / 307 J**	Mid	120	150	
BERA Sample ID: NAS03 North Soil Area RI/FS Sample ID:SB206	Location represents high concentration of barium; mid concentrations of chromium, copper, and zinc; and low concentration of 4,4'-DDT. Aroclor-1254 is below detection limits and not expected to be present.		Location represents mid concentrations of barium, copper, and zinc; and low concentrations of chromium and 4,4-DDT.				***Polychaete - 21 day, Neanthes arenaceodentata*** **Survival**: No statistically significant difference from reference locations. **Growth**: No statistically significant difference from reference locations.
4,4'-DDT	0.00445	Low	**0.0078**	Low	NA	0.00119	
Aroclor-1254	0.011 U	NA	NA	NA	500	0.0227	
Barium	**426**	High	190	Mid	330	NA	
Chromium	23.1	Mid	**15.4**	Low	0.4	81	
Copper	30.7	Mid	22.9	Mid	61	34	
Zinc	**398**	Mid	**307 J**	Mid	120	150	

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS01	**76**	**0.6648**	**0.9817**
NAS07 (Ref 1)	92	1.533	1.679
NAS08 (Ref 2)	64	0.688	1.008
NAS09 (Ref 3)	60	0.5512	0.9815

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS02	**88**	**2.123**	**2.407**
NAS07 (Ref 1)	92	1.533	1.679
NAS08 (Ref 2)	64	0.688	1.008
NAS09 (Ref 3)	60	0.5512	0.9815

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS03	**96**	**2.603**	**2.704**
NAS07 (Ref 1)	92	1.533	1.679
NAS08 (Ref 2)	64	0.688	1.008
NAS09 (Ref 3)	60	0.5512	0.9815

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BERA Sample ID: NAS04 North Soil Area RI/FS Sample ID:NE4SB11	Location represents mid concentrations of barium, copper, and zinc; and low concentrations of chromium and Aroclor-1254. 4,4'-DDT is below detection limits and not expected to be present.		Location represents high concentration of barium; mid concentration of zinc; and low concentrations of chromium, copper, and Aroclor-1254.				***Polychaete - 21 day, Neanthes arenaceodentata*** **Survival**: No statistically significant difference from reference locations. **Growth**: No statistically significant difference from reference locations.
4,4'-DDT	0.000148 U	NA	NA	NA	NA	0.00119	
Aroclor-1254	0.0122	Low	0.01	Low	500	0.0227	
Barium	153	Mid	**502**	High	330	NA	
Chromium	11.5	Low	**7.86**	Low	0.4	81	
Copper	27.4	Mid	10.8	Low	61	34	
Zinc	107	Mid	**321 J**	Mid	120	150	
BERA Sample ID: NAS05 North Soil Area RI/FS Sample ID:NE3SB09	Location represents mid concentrations of barium, chromium, copper, and zinc; and low concentration of 4,4'-DDT. Aroclor-1254 is below detection limit and not expected to be present.		Location represents mid concentrations of barium, chromium, copper, zinc; and low concentration of 4,4'-DDT.				***Polychaete - 21 day, Neanthes arenaceodentata*** **Survival**: No statistically significant difference from reference locations. **Growth**: No statistically significant difference from reference locations.
4,4'-DDT	0.0108	Low	**0.008**	Low	NA	0.00119	
Aroclor-1254	0.00801 U	NA	NA	NA	500	0.0227	
Barium	145	Mid	198	Mid	330	NA	
Chromium	30	Mid	**30.9**	Mid	0.4	81	
Copper	27.8	Mid	27.4	Mid	61	34	
Zinc	**288**	Mid	**309 J**	Mid	120	150	
BERA Sample ID: NAS06 North Soil Area RI/FS Sample ID:ND1SB01	Location represents low concentrations of barium, chromium, copper, and zinc. Aroclor-1254 and 4,4'-DDT are below detection limits and not expected to be present.		Location represents low concentrations of barium, chromium, copper, and zinc.				***Polychaete - 21 day, Neanthes arenaceodentata*** **Survival**: No statistically significant difference from reference locations. **Growth**: No statistically significant difference from reference locations.
4,4'-DDT	0.00016 U	NA	NA	NA	NA	0.00119	
Aroclor-1254	0.00415 U	NA	NA	NA	500	0.0227	
Barium	46.1	Low	52.2	Low	330	NA	
Chromium	11.7	Low	**13.4**	Low	0.4	81	
Copper	8.04	Low	10.8	Low	61	34	
Zinc	32.6	Low	62.3 J	Low	120	150	

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS04	**84**	**4.52**	**5.423**
NAS07 (Ref 1)	92	1.533	1.679
NAS08 (Ref 2)	64	0.688	1.008
NAS09 (Ref 3)	60	0.5512	0.9815

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS05	**76**	**1.998**	**2.693**
NAS07 (Ref 1)	92	1.533	1.679
NAS08 (Ref 2)	64	0.688	1.008
NAS09 (Ref 3)	60	0.5512	0.9815

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS06	**88**	**1.648**	**1.894**
NAS07 (Ref 1)	92	1.533	1.679
NAS08 (Ref 2)	64	0.688	1.008
NAS09 (Ref 3)	60	0.5512	0.9815

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Location	RI/FS Concentration Gradient (mg/kg DW)		2010 BERA Concentration Gradient (mg/kg DW)		Soil Benchmark (mg/kg DW)	Marine Sediment Benchmark (mg/kg DW)
BERA Sample ID: NAS07 North area Background Soil Location Background Soil BSS-01	Represents background with low chromium and high zinc concentrations.		Represents background with low chromium and copper concentrations; and high barium and zinc concentrations.			
Barium	NA	NA	**340**	High	330	NA
Chromium	17.6	Low	**12.4**	Low	0.4	81
Copper	NA	NA	10.1	Low	61	34
Zinc	**969**	High	**501**	High	120	150

Polychaete - 21 day, Neanthes arenaceodentata

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS07 (Ref 1)	**92**	**1.533**	**1.679**

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
BERA Sample ID: NAS08 North area Background Soil Location Background Soil BSS-02	Represents background with low chromium and zinc concentrations; and mid barium concentrations.		Represents background with low chromium and copper concentrations; and mid barium and zinc concentrations.			
Barium	**361**	Mid	182	Mid	330	NA
Chromium	17.6	Low	**13.6**	Low	0.4	81
Copper	NA	NA	12.6	Low	61	34
Zinc	81.2	Low	**182**	Mid	120	150

Polychaete - 21 day, Neanthes arenaceodentata

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS08 (Ref 2)	**64**	**0.688**	**1.008**

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
BERA Sample ID: NAS09 North area Background Soil Location Background Soil BSS-03	Represents background with low chromium and zinc concentrations.		Represents background with low chromium, copper, and zinc concentrations; and mid barium concentrations.			
Barium	NA	NA	172	Mid	330	NA
Chromium	20.1	Low	**13.3**	Low	0.4	81
Copper	NA	NA	11	Low	61	34
Zinc	77	Low	63.1	Low	120	150

Polychaete - 21 day, Neanthes arenaceodentata

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS09 (Ref 3)	**60**	**0.5512**	**0.9815**

Notes:
bgs - below grounnd surface
DW - dry weight
H - bias in results likely to be high
J - estimated value
NA - not analyzed, available, or applicable
U - not detected

High = High concentration within the gradient
Mid = Mid concentration within the gradient
Low = Low concentration within the gradient

* The primary growth endpoint Dry Wt is the dry weight of surviving organisms divided by the number of surviving organisms. Biomass (the dry weight of surviving organisms divided by initial number of organisms) is not routinely applied to sediment testing (EPA, 2000).
**Appendix B shows all of the individual replicates for each test chamber. This table presents the mean bioassay results for each sample based on five replicates.

Bolding indicates that the detected concentration is greater than an ecological screening benchmark (Table 6 Final BERA WP & SAP; URS, 2010a)

Results for duplicate samples are separated by a "/".